



A-686A.ST25.txt  
SEQUENCE LISTING

<110> THEILL, LARS EYDE  
YU, GANG

<120> METHODS AND COMPOSITIONS OF MATTER CONCERNING APRIL/G70, BCMA, BLYS/AGP-3,  
AND TACI

<130> A-686A

<140> US 09/855,158

<141> 2001-05-14

<150> US 60/214,591

<151> 2000-06-27

<150> US 60/204,039

<151> 2000-05-12

<160> 30

<170> PatentIn version 3.1

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35 40 45

Gln Gly Thr Gly Gly Pro Ser Gln Asn Gly Glu Gly Tyr Pro Trp Gln  
50 55 60

Ser Leu Pro Glu Gln Ser Ser Asp Ala Leu Glu Ala Trp Glu Ser Gly  
65 70 75 80

Glu Arg Ser Arg Lys Arg Arg Ala Val Leu Thr Gln Lys Gln Lys Lys  
85 90 95

Gln His Ser Val Leu His Leu Val Pro Ile Asn Ala Thr Ser Lys Asp  
100 105 110

Asp Ser Asp Val Thr Glu Val Met Trp Gln Pro Ala Leu Arg Arg Gly  
115 120 125

Arg Gly Leu Gln Ala Gln Gly Tyr Gly Val Arg Ile Gln Asp Ala Gly  
130 135 140

Val Tyr Leu Leu Tyr Ser Gln Val Leu Phe Gln Asp Val Thr Phe Thr  
145 150 155 160

Met Gly Gln Val Val Ser Arg Glu Gly Gln Gly Arg Gln Glu Thr Leu  
165 170 175

Phe Arg Cys Ile Arg Ser Met Pro Ser His Pro Asp Arg Ala Tyr Asn  
180 185 190

Ser Cys Tyr Ser Ala Gly Val Phe His Leu His Gln Gly Asp Ile Leu

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Ser Val Ile Ile Pro Arg Ala Arg Ala Lys Leu Asn Leu Ser Pro His  
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 <213> Mus musculus

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 20 25 30

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 35 40 45

Leu Arg Arg Glu Val Ser Arg Leu Gln Arg Ser Gly Gly Pro Ser Gln  
 50 55 60

Lys Gln Gly Glu Arg Pro Trp Gln Ser Leu Trp Glu Gln Ser Pro Asp  
 65 70 75 80

Val Leu Glu Ala Trp Lys Asp Gly Ala Lys Ser Arg Arg Arg Arg Ala  
 85 90 95

Val Leu Thr Gln Lys His Lys Lys Lys His Ser Val Leu His Leu Val  
 100 105 110

Pro Val Asn Ile Thr Ser Lys Asp Ser Asp Val Thr Glu Val Met Trp  
 115 120 125

Gln Pro Val Leu Arg Arg Gly Arg Gly Leu Glu Ala Gln Gly Asp Ile  
 130 135 140

Val Arg Val Trp Asp Thr Gly Ile Tyr Leu Leu Tyr Ser Gln Val Leu  
 145 150 155 160

Phe His Asp Val Thr Phe Thr Met Gly Gln Val Val Ser Arg Glu Gly  
 165 170 175

Gln Gly Arg Arg Glu Thr Leu Phe Arg Cys Ile Arg Ser Met Pro Ser  
 180 185 190

Asp Pro Asp Arg Ala Tyr Asn Ser Cys Tyr Ser Ala Gly Val Phe His  
 195 200 205

Leu His Gln Gly Asp Ile Ile Thr Val Lys Ile Pro Arg Ala Asn Ala  
 210 215 220

Lys Leu Ser Leu Ser Pro His Gly Thr Phe Leu Gly Phe Val Lys Leu  
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<211> 181  
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Ala Cys Ile Pro Cys Gln Leu Arg Cys Ser Ser Asn Thr Pro Pro Leu  
20 25 30

Thr Cys Gln Arg Tyr Cys Asn Ala Ser Val Thr Asn Ser Val Lys Gly  
35 40 45

Thr Asn Ala Ile Leu Trp Thr Cys Leu Gly Leu Ser Leu Ile Ile Ser  
50 55 60

Leu Ala Val Phe Val Leu Met Phe Leu Leu Arg Lys Ile Ser Ser Glu  
65 70 75 80

Pro Leu Lys Asp Glu Phe Lys Asn Thr Gly Ser Gly Leu Leu Gly Met  
85 90 95

Ala Asn Ile Asp Leu Glu Lys Ser Arg Thr Gly Asp Glu Ile Ile Leu  
100 105 110

Pro Arg Gly Leu Glu Tyr Thr Val Glu Glu Cys Thr Cys Glu Asp Cys  
115 120 125

Ile Lys Ser Lys Pro Lys Val Asp Ser Asp His Cys Phe Pro Leu Pro  
130 135 140

Ala Met Glu Glu Gly Ala Thr Ile Leu Val Thr Thr Lys Thr Asn Asp  
145 150 155 160

Tyr Cys Lys Ser Leu Pro Ala Ala Leu Ser Ala Thr Glu Ile Glu Lys  
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Ser Ile Ser Ala Arg  
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<210> 6  
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<212> PRT  
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Ala Cys Ile Pro Cys Gln Leu Arg Cys Ser Ser Asn Thr Pro Pro Leu  
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Thr Cys Gln Arg Tyr Cys Asn Ala Ser Val Thr Asn Ser Val Lys Gly  
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Thr Asn Ala  
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<213> Homo sapiens

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Cys Gln Leu Arg Cys Ser Ser Asn Thr Pro Pro Leu Thr Cys Gln Arg  
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Tyr Cys

<210> 8  
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<213> Homo sapiens

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Phe Val Leu Met Phe  
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<213> Homo sapiens

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Ala Cys Ile Pro Cys Gln Leu Arg Cys Ser Ser Asn Thr Pro Pro Leu  
20 25 30

Thr Cys Gln Arg Tyr Cys Asn Ala Ser Val Thr Asn Ser Val Lys Gly  
35 40 45

Thr Asn Ala Gly Gly Gly Gly Gly Asp Lys Thr His Thr Cys Pro Pro  
50 55 60

Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro  
65 70 75 80

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Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr  
85 90 95

Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn  
100 105 110

Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg  
115 120 125

Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val  
130 135 140

Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser  
145 150 155 160

Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys  
165 170 175

Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp  
180 185 190

Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe  
195 200 205

Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu  
210 215 220

Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe  
225 230 235 240

Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly  
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Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr  
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Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys  
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<210> 10  
<211> 281  
<212> PRT  
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Gln Pro Tyr Cys Asp Pro Ser Val Thr Ser Ser Val Lys Gly Ser Tyr  
35 40 45

Thr Gly Gly Gly Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro  
50 55 60

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys  
65 70 75 80

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val  
85 90 95

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr  
100 105 110

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu  
115 120 125

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His  
130 135 140

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys  
145 150 155 160

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln  
165 170 175

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu  
180 185 190

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro  
195 200 205

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn  
210 215 220

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu  
225 230 235 240

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val  
245 250 255

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln  
260 265 270

Lys Ser Leu Ser Leu Ser Pro Gly Lys  
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<210> 11  
<211> 185  
<212> PRT



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<213> Murine

<400> 11

Met Ala Gln Gln Cys Phe His Ser Glu Tyr Phe Asp Ser Leu Leu His  
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Ala Cys Lys Pro Cys His Leu Arg Cys Ser Asn Pro Pro Ala Thr Cys  
20 25 30

Gln Pro Tyr Cys Asp Pro Ser Val Thr Ser Ser Val Lys Gly Thr Tyr  
35 40 45

Thr Val Leu Trp Ile Phe Leu Gly Leu Thr Leu Val Leu Ser Leu Ala  
50 55 60

Leu Phe Thr Ile Ser Phe Leu Leu Arg Lys Met Asn Pro Glu Ala Leu  
65 70 75 80

Lys Asp Glu Pro Gln Ser Pro Gly Gln Leu Asp Gly Ser Ala Gln Leu  
85 90 95

Asp Lys Ala Asp Thr Glu Leu Thr Arg Ile Arg Ala Gly Asp Asp Arg  
100 105 110

Ile Phe Pro Arg Ser Leu Glu Tyr Thr Val Glu Glu Cys Thr Cys Glu  
115 120 125

Asp Cys Val Lys Ser Lys Pro Lys Gly Asp Ser Asp His Phe Phe Pro  
130 135 140

Leu Pro Ala Met Glu Glu Gly Ala Thr Ile Leu Val Thr Thr Lys Thr  
145 150 155 160

Gly Asp Tyr Gly Lys Ser Ser Val Pro Thr Ala Leu Gln Ser Val Met  
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Gly Met Glu Lys Pro Thr His Thr Arg  
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<211> 117

<212> PRT

<213> human-murine Consensus

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20 25 30

Lys Gly Thr Leu Trp Leu Gly Leu Leu Ser Leu Ala Phe Phe Leu Leu

35

40

45

Arg Lys Glu Leu Lys Asp Glu Gly Ser Leu Ala Leu Arg Gly Asp Ile  
 50 55 60

Pro Arg Leu Glu Tyr Thr Val Glu Glu Cys Thr Cys Glu Asp Cys Lys  
 65 70 75 80

Ser Lys Pro Lys Asp Ser Asp His Phe Pro Leu Pro Ala Met Glu Glu  
 85 90 95

Gly Ala Thr Ile Leu Val Thr Thr Lys Thr Asp Tyr Lys Ser Pro Ala  
 100 105 110

Leu Ser Glu Lys Arg  
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 <211> 81  
 <212> PRT  
 <213> Consensus

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Cys Gln Leu Arg Cys Ser Ser Asn Thr Pro Pro Leu Thr Cys Gln Arg  
 20 25 30

Tyr Cys Cys Glu Tyr Phe Asp Ser Leu Leu His Ala Cys Pro Cys Leu  
 35 40 45

Arg Cys Ser Pro Pro Thr Cys Gln Tyr Cys Cys Phe His Ser Glu Tyr  
 50 55 60

Phe Asp Ser Leu Leu His Ala Cys Pro Pro Ala Thr Cys Gln Pro Tyr  
 65 70 75 80

Cys

<210> 14  
 <211> 293  
 <212> PRT  
 <213> Homo sapiens

<400> 14

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Gln Glu Glu Arg Phe Pro Gln Gly Leu Trp Thr Gly Val Ala Met Arg  
 20 25 30

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Ser Cys Pro Glu Glu Gln Tyr Trp Asp Pro Leu Leu Gly Thr Cys Met  
35 40 45

Ser Cys Lys Thr Ile Cys Asn His Gln Ser Gln Arg Thr Cys Ala Ala  
50 55 60

Phe Cys Arg Ser Leu Ser Cys Arg Lys Glu Gln Gly Lys Phe Tyr Asp  
65 70 75 80

His Leu Leu Arg Asp Cys Ile Ser Cys Ala Ser Ile Cys Gly Gln His  
85 90 95

Pro Lys Gln Cys Ala Tyr Phe Cys Glu Asn Lys Leu Arg Ser Pro Val  
100 105 110

Asn Leu Pro Pro Glu Leu Arg Arg Gln Arg Ser Gly Glu Val Glu Asn  
115 120 125

Asn Ser Asp Asn Ser Gly Arg Tyr Gln Gly Leu Glu His Arg Gly Ser  
130 135 140

Glu Ala Ser Pro Ala Leu Pro Gly Leu Lys Leu Ser Ala Asp Gln Val  
145 150 155 160

Ala Leu Val Tyr Ser Thr Leu Gly Leu Cys Leu Cys Ala Val Leu Cys  
165 170 175

Cys Phe Leu Val Ala Val Ala Cys Phe Leu Lys Lys Arg Gly Asp Pro  
180 185 190

Cys Ser Cys Gln Pro Arg Ser Arg Pro Arg Gln Ser Pro Ala Lys Ser  
195 200 205

Ser Gln Asp His Ala Met Glu Ala Gly Ser Pro Val Ser Thr Ser Pro  
210 215 220

Glu Pro Val Glu Thr Cys Ser Phe Cys Phe Pro Glu Cys Arg Ala Pro  
225 230 235 240

Thr Gln Glu Ser Ala Val Thr Pro Gly Thr Pro Asp Pro Thr Cys Ala  
245 250 255

Gly Arg Trp Gly Cys His Thr Arg Thr Thr Val Leu Gln Pro Cys Pro  
260 265 270

His Ile Pro Asp Ser Gly Leu Gly Ile Val Cys Val Pro Ala Gln Glu  
275 280 285

Gly Gly Pro Gly Ala  
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<210> 15  
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 <212> PRT  
 <213> Homo sapiens

<400> 15

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 20 25 30

Ser Cys Pro Glu Glu Gln Tyr Trp Asp Pro Leu Leu Gly Thr Cys Met  
 35 40 45

Ser Cys Lys Thr Ile Cys Asn His Gln Ser Gln Arg Thr Cys Ala Ala  
 50 55 60

Phe Cys Arg Ser Leu Ser Cys Arg Lys Glu Gln Gly Lys Phe Tyr Asp  
 65 70 75 80

His Leu Leu Arg Asp Cys Ile Ser Cys Ala Ser Ile Cys Gly Gln His  
 85 90 95

Pro Lys Gln Cys Ala Tyr Phe Cys Glu Asn Lys Leu Arg Ser Pro Val  
 100 105 110

Asn Leu Pro Pro Glu Leu Arg Arg Gln Arg Ser Gly Glu Val Glu Asn  
 115 120 125

Asn Ser Asp Asn Ser Gly Arg Tyr Gln Gly Leu Glu His Arg Gly Ser  
 130 135 140

Glu Ala Ser Pro Ala Leu Pro Gly Leu Lys Leu Ser Ala Asp Gln Val  
 145 150 155 160

Ala Leu Val Tyr Ser Thr  
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<210> 16  
 <211> 67  
 <212> PRT  
 <213> Homo sapiens

<400> 16

Cys Pro Glu Glu Gln Tyr Trp Asp Pro Leu Leu Gly Thr Cys Met Ser  
 1 5 10 15

Cys Lys Thr Ile Cys Asn His Gln Ser Gln Arg Thr Cys Ala Ala Phe  
 20 25 30

Cys Cys Arg Lys Glu Gln Gly Lys Phe Tyr Asp His Leu Leu Arg Asp  
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35

40

45

Cys Ile Ser Cys Ala Ser Ile Cys Gly Gln His Pro Lys Gln Cys Ala  
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Tyr Phe Cys  
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<210> 17  
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<212> PRT  
<213> Homo sapiens

<400> 17

Leu Gly Leu Cys Leu Cys Ala Val Leu Cys Cys Phe Leu Val Ala Val  
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Ala Cys Phe Leu  
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<211> 397  
<212> PRT  
<213> Homo sapiens

<400> 18

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Gln Glu Glu Arg Phe Pro Gln Gly Leu Trp Thr Gly Val Ala Met Arg  
20 25 30

Ser Cys Pro Glu Glu Gln Tyr Trp Asp Pro Leu Leu Gly Thr Cys Met  
35 40 45

Ser Cys Lys Thr Ile Cys Asn His Gln Ser Gln Arg Thr Cys Ala Ala  
50 55 60

Phe Cys Arg Ser Leu Ser Cys Arg Lys Glu Gln Gly Lys Phe Tyr Asp  
65 70 75 80

His Leu Leu Arg Asp Cys Ile Ser Cys Ala Ser Ile Cys Gly Gln His  
85 90 95

Pro Lys Gln Cys Ala Tyr Phe Cys Glu Asn Lys Leu Arg Ser Pro Val  
100 105 110

Asn Leu Pro Pro Glu Leu Arg Arg Gln Arg Ser Gly Glu Val Glu Asn  
115 120 125

Asn Ser Asp Asn Ser Gly Arg Tyr Gln Gly Leu Glu His Arg Gly Ser  
130 135 140

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Glu Ala Ser Pro Ala Leu Pro Gly Leu Lys Leu Ser Ala Asp Gln Val  
145 150 155 160

Ala Leu Val Tyr Ser Gly Gly Gly Gly Gly Asp Lys Thr His Thr Cys  
165 170 175

Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu  
180 185 190

Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu  
195 200 205

Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys  
210 215 220

Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys  
225 230 235 240

Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu  
245 250 255

Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys  
260 265 270

Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys  
275 280 285

Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser  
290 295 300

Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys  
305 310 315 320

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln  
325 330 335

Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly  
340 345 350

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln  
355 360 365

Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn  
370 375 380

His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys  
385 390 395

<210> 19  
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<212> PRT

A-686A.ST25.txt

<213> Mus musculus

<400> 19

Met Asp Tyr Lys Asp Asp Asp Asp Lys Lys His Lys Lys Lys His Ser  
1 5 10 15

Val Leu His Leu Val Pro Val Asn Ile Thr Ser Lys Asp Ser Asp Val  
20 25 30

Thr Glu Val Met Trp Gln Pro Val Leu Arg Arg Gly Arg Gly Leu Glu  
35 40 45

Ala Gln Gly Asp Ile Val Arg Val Trp Asp Thr Gly Ile Tyr Leu Leu  
50 55 60

Tyr Ser Gln Val Leu Phe His Asp Val Thr Phe Thr Met Gly Gln Val  
65 70 75 80

Val Ser Arg Glu Gly Gln Gly Arg Arg Glu Thr Leu Phe Arg Cys Ile  
85 90 95

Arg Ser Met Pro Ser Asp Pro Asp Arg Ala Tyr Asn Ser Cys Tyr Ser  
100 105 110

Ala Gly Val Phe His Leu His Gln Gly Asp Ile Ile Thr Val Lys Ile  
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Pro Arg Ala Asn Ala Lys Leu Ser Leu Ser Pro His Gly Thr Phe Leu  
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Gly Phe Val Lys Leu  
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<211> 59

<212> PRT

<213> Homo sapiens

<400> 20

Cys Pro Glu Glu Gln Tyr Trp Asp Pro Leu Leu Gly Thr Cys Met Ser  
1 5 10 15

Cys Lys Thr Ile Cys Asn His Gln Ser Gln Arg Thr Cys Ala Ala Phe  
20 25 30

Cys Arg Ser Leu Ser Cys Arg Lys Glu Gln Gly Lys Phe Tyr Asp His  
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Leu Leu Arg Asp Cys Ile Ser Cys Ala Ser Ile  
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<210> 21

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<211> 58  
 <212> PRT  
 <213> Homo sapiens

<400> 21

Cys Ser Gln Asn Glu Tyr Phe Asp Ser Leu Leu His Ala Cys Ile Pro  
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Cys Gln Leu Arg Cys Ser Ser Asn Thr Pro Pro Leu Thr Cys Gln Arg  
 20 25 30

Tyr Cys Asn Ala Ser Val Thr Asn Ser Val Lys Gly Thr Asn Ala Ile  
 35 40 45

Leu Trp Thr Cys Leu Gly Leu Ser Leu Ile  
 50 55

<210> 22  
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 <212> PRT  
 <213> Homo sapiens

<220>  
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Ser Trp Gly Ala Ala Leu Gly Ala Val Ala Cys Ala Met Ala Leu Leu  
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Thr Gln Gln Thr Glu Leu Gln Ser Leu Arg Arg Glu Val Ser Arg Leu  
 35 40 45

Gln Gly Thr Gly Gly Pro Ser Gln Asn Gly Glu Gly Tyr Pro Trp Gln  
 50 55 60

Ser Leu Pro Glu Gln Ser Ser Asp Ala Leu Glu Ala Trp Glu Xaa Gly  
 65 70 75 80

Glu Arg Ser Arg Lys Arg Arg Ala Val Leu Thr Gln Lys Gln Lys Lys  
 85 90 95

Gln His Ser Val Leu His Leu Val Pro Ile Asn Ala Thr Ser Lys Asp  
 100 105 110

Asp Ser Asp Val Thr Glu Val Met Trp Gln Pro Ala Leu Arg Arg Gly  
 115 120 125

Arg Gly Leu Gln Ala Gln Gly Tyr Gly Val Arg Ile Gln Asp Ala Gly  
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135

140

Val Tyr Leu Leu Tyr Ser Gln Val Leu Phe Gln Asp Val Thr Phe Thr  
 145 150 155 160

Met Gly Gln Val Val Ser Arg Glu Gly Gln Gly Arg Gln Glu Thr Leu  
 165 170 175

Phe Arg Cys Ile Arg Ser Met Pro Ser His Pro Asp Arg Ala Tyr Asn  
 180 185 190

Ser Cys Tyr Ser Ala Gly Val Phe His Leu His Gln Gly Asp Ile Leu  
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Ser Val Ile Ile Pro Arg Ala Arg Ala Lys Leu Asn Leu Ser Pro His  
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Gly Thr Phe Leu Gly Phe Val Lys Leu  
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 35 40 45

Gln Arg Ser Gly Gly Pro Ser Gln Lys Gln Gly Glu Arg Pro Trp Gln  
 50 55 60

Ser Leu Trp Glu Gln Ser Pro Asp Val Leu Glu Ala Trp Lys Asp Gly  
 65 70 75 80

Ala Lys Ser Arg Arg Arg Arg Ala Val Leu Thr Gln Lys His Lys Lys  
 85 90 95

Lys His Ser Val Leu His Leu Val Pro Val Asn Ile Thr Ser Lys Asp  
 100 105 110

Ser Asp Val Thr Glu Val Met Trp Gln Pro Val Leu Arg Arg Gly Arg  
 115 120 125

Gly Pro Gly Gly Gln Gly Asp Ile Val Arg Val Trp Asp Thr Gly Ile  
 130 135 140

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Tyr Leu Leu Tyr Ser Gln Val Leu Phe His Asp Val Thr Phe Thr Met  
145 150 155 160

Gly Gln Val Val Ser Arg Glu Gly Gln Gly Arg Arg Glu Thr Leu Phe  
165 170 175

Arg Cys Ile Arg Ser Met Pro Ser Asp Pro Asp Arg Ala Tyr Asn Ser  
180 185 190

Cys Tyr Ser Ala Gly Val Phe His Leu His Gln Gly Asp Ile Ile Thr  
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Val Lys Ile Pro Arg Ala Asn Ala Lys Leu Ser Leu Ser Pro His Gly  
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Thr Phe Leu Gly Phe Val Lys Leu  
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Leu Gln Ser Leu Arg Arg Glu Val Ser Arg Leu Gln Gly Gly Pro Ser  
35 40 45

Gln Pro Trp Gln Ser Leu Glu Gln Ser Asp Leu Glu Ala Trp Gly Ser  
50 55 60

Arg Arg Arg Ala Val Leu Thr Gln Lys Lys Lys His Ser Val Leu His  
65 70 75 80

Leu Val Pro Asn Thr Ser Lys Asp Ser Asp Val Thr Glu Val Met Trp  
85 90 95

Gln Pro Leu Arg Arg Gly Arg Gly Gln Gly Val Arg Asp Gly Tyr Leu  
100 105 110

Leu Tyr Ser Gln Val Leu Phe Asp Val Thr Phe Thr Met Gly Gln Val  
115 120 125

Val Ser Arg Glu Gly Gln Gly Arg Glu Thr Leu Phe Arg Cys Ile Arg  
130 135 140

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Ser Met Pro Ser Pro Asp Arg Ala Tyr Asn Ser Cys Tyr Ser Ala Gly  
145 150 155 160

Val Phe His Leu His Gln Gly Asp Ile Val Ile Pro Arg Ala Ala Lys  
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Leu Leu Ser Pro His Gly Thr Phe Leu Gly Phe Val Lys Leu  
180 185 190

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